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**FIGURE 1**

**SIP Address Prefix to Set Precedence**

<b>Call Precedence</b>	<b>SIP Call Prefix</b>	<b>Resource-Priority Header Value</b>	<b>DiffServ Value (decimal)</b>	<b>ToS Byte Value (decimal)</b>
<b>Routine</b>	<b>*91*</b>	<b>dsn.routine</b>	<b>46</b>	<b>184</b>
<b>Priority</b>	<b>*92*</b>	<b>dsn.priority</b>	<b>45</b>	<b>180</b>
<b>Immediate</b>	<b>*93*</b>	<b>dsn.immediate</b>	<b>44</b>	<b>176</b>
<b>Flash</b>	<b>*94*</b>	<b>dsn.flash</b>	<b>43</b>	<b>172</b>
<b>Flash- Override</b>	<b>*95*</b>	<b>dsn.flash-override</b>	<b>42</b>	<b>168</b>

**FIGURE 18**

**ToS Values For Call Packets (Priority Queue)**

<b>Call Precedence</b>	<b>DiffServ Value (decimal)</b>	<b>ToS Byte Value (decimal)</b>	<b>Maximum Number Queued</b>
<b>Routine</b>	<b>46</b>	<b>184</b>	<b>24</b>
<b>Priority</b>	<b>45</b>	<b>180</b>	<b>28</b>
<b>Immediate</b>	<b>44</b>	<b>176</b>	<b>32</b>
<b>Flash</b>	<b>43</b>	<b>172</b>	<b>36</b>
<b>Flash-Override</b>	<b>42</b>	<b>168</b>	<b>40</b>

FIGURE 2

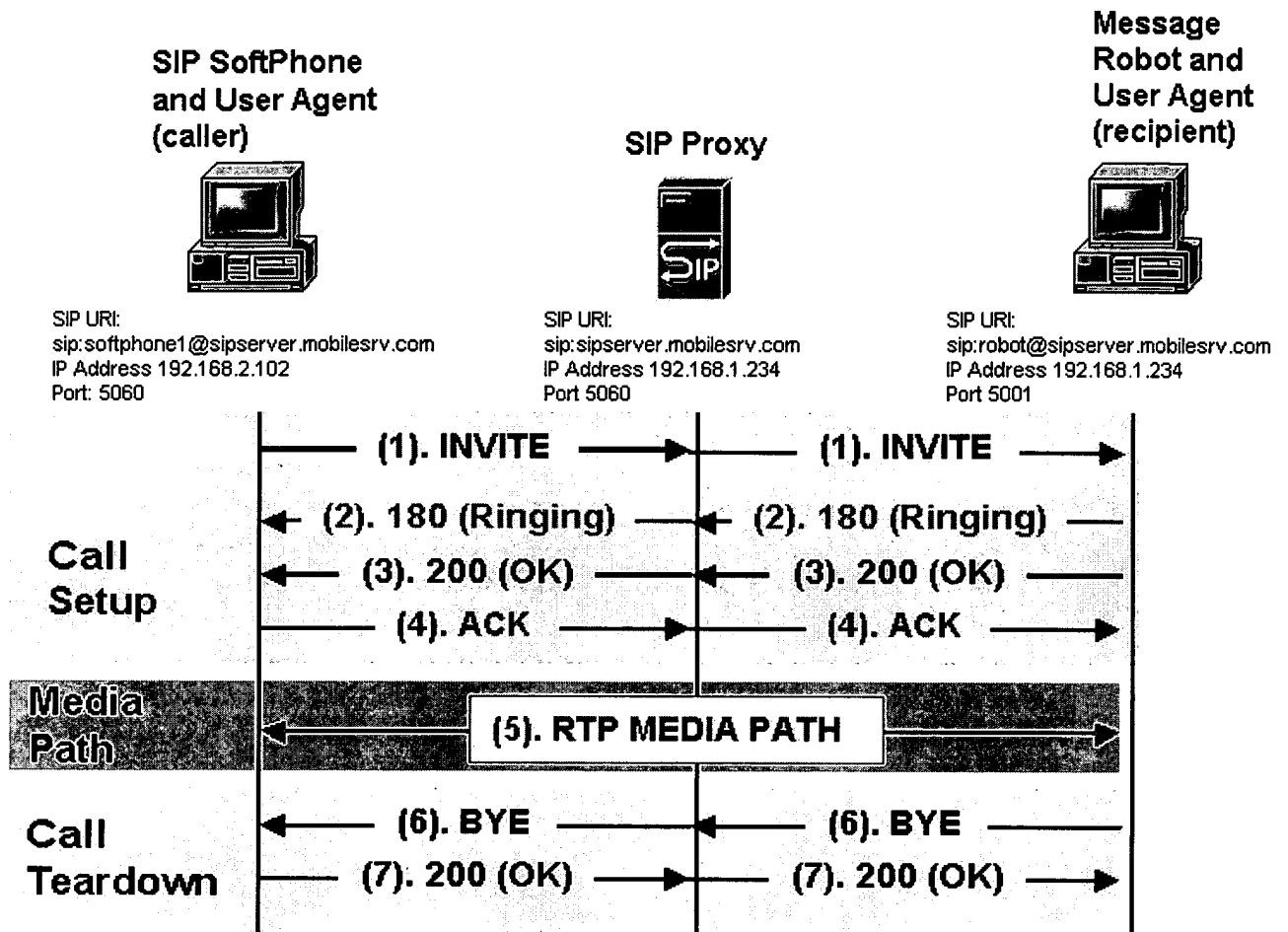


FIGURE 3

```
INVITE sip:*92*robot@sipserver.mobilesrv.com:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.2.102:5060
From: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot<sip:*92*robot@sipserver.mobilesrv.com:5060>
Call-ID: 103b0c00cccccccccccccccccccccccc@192.168.2.102
CSeq: 1 INVITE
Subject: VovidalINVITE
Contact: <sip:softphone1@192.168.2.102:5060;user=phone>
Content-Type: application/sdp
Content-Length: 216

v=0
o=- 32130 32130 IN IP4 192.168.2.102
s=VOVIDA Session
c=IN IP4 192.168.2.102
t=3249381219 0
m=audio 10000 RTP/AVP 0 100
a=rtpmap:0 PCMU/8000
a=rtpmap:100 telephone-event/8000
a=ptime:20
a=fmtp:100 0-11
```

FIGURE 4

```
INVITE sip:robot@192.168.1.234:5001;user=phone SIP/2.0
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKld3ecaf6733964c4dcfa9cc40adb098c3
Via: SIP/2.0/UDP 192.168.2.102:5060
Record-Route: <sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234>
From: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot <sip:robot@sipserver.mobilesrv.com:5060>
Call-ID: 103b0c00cccccccccccccccccccccccc@192.168.2.102
Resource-Priority: dsn.priority
CSeq: 1 INVITE
Contact: <sip:softphone1@192.168.2.102:5060;user=phone>
subject: VovidalINVITE
Content-Type: application/sdp
Content-Length: 216

v=0
o=- 32130 32130 IN IP4 192.168.2.102
s=VOVIDA Session
c=IN IP4 192.168.2.102
t=3249381219 0
m=audio 10000 RTP/AVP 0 100
a=rtpmap:0 PCMU/8000
a=rtpmap:100 telephone-event/8000
a=ptime:20
a=fmtp:100 0-11
```

**FIGURE 5**

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKld3ecaf6733964c4dcfa9cc40adb098c3
Via: SIP/2.0/UDP 192.168.2.102:5060
To: *92*robot<sip:robot@sipserver.mobilesrv.com:5060>
From: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 1 INVITE
Content-Length: 0
```

**FIGURE 6**

```
SIP/2.0 180 Ringing
Via: SIP/2.0/UDP 192.168.2.102:5060
From: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot <sip:*92*robot@sipserver.mobilesrv.com:5060>
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 1 INVITE
Content-Length: 0
```

**FIGURE 7**

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKld3ecaf6733964c4dcfa9cc40adb098c3
Via: SIP/2.0/UDP 192.168.2.102:5060
To: *92*robot<sip:robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
From: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 1 INVITE
Record-Route: <sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234>
Contact: <sip:robot@192.168.1.234:5001>
Content-Type: application/sdp
Content-Length: 170

v=0
o=- 3249384273 3249384273 IN IP4 192.168.1.234
s=VOVIDA Session
c=IN IP4 192.168.1.234
t=3249384273 0
m=audio 10100 RTP/AVP 0
a=rtpmap:0 PCMU/8000
a=ptime:20
```

**FIGURE 8**

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.2.102:5060
Record-Route: <sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234>
From: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot <sip:*92*robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 1 INVITE
Contact: <sip:robot@192.168.1.234:5001>
Content-Type: application/sdp
Content-Length: 170

v=0
o=- 3249384273 3249384273 IN IP4 192.168.1.234
s=VOVIDA Session
c=IN IP4 192.168.1.234
t=3249384273 0
m=audio 10100 RTP/AVP 0
a=rtpmap:0 PCMU/8000
a=ptime:20
```

**FIGURE 9**

```
ACK sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234 SIP/2.0
Via: SIP/2.0/UDP 192.168.2.102:5060
From: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot<sip:*92*robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 1 ACK
Route: <sip:robot@192.168.1.234:5001>
Content-Length: 0
```

**FIGURE 10**

```
ACK sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKIf4cb1970e036f7c7d87c26a166737392
Via: SIP/2.0/UDP 192.168.2.102:5060
Record-Route: <sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234>
From: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>
To: *92*robot <sip:robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
Resource-Priority: dsn.priority
CSeq: 1 ACK
Content-Length: 0
```

**FIGURE 11**

```
BYE sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.234:5001
To: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>
From: *92*robot<sip:robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 2 BYE
Max-Forwards: 70
Route: <sip:softphone1@192.168.2.102:5060>
Content-Length: 0
```

**FIGURE 12**

```
BYE sip:192.168.1.234:5060;transport=UDP;maddr=192.168.1.234 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKI7b3f7ed10682a309743433d45e4ab589
Via: SIP/2.0/UDP 192.168.1.234:5001
Route: <sip:softphone1@192.168.2.102:5060>
From: *92*robot <sip:*92*robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
To: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 2 BYE
max-forwards: 70
Content-Length: 0
```

**FIGURE 13**

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.234:5060;branch=z9hG4bKI7b3f7ed10682a309743433d45e4ab589
Via: SIP/2.0/UDP 192.168.1.234:5001
From: *92*robot<sip:*92*robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6
To: softphone1<sip:softphone1@192.168.2.102:5060;user=phone>;tag=ec6f0a00
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102
CSeq: 2 BYE
Content-Length: 0
```

FIGURE 14

SIP/2.0 200 OK  
Via: SIP/2.0/UDP 192.168.1.234:5001  
From: \*92\*robot <sip:robot@sipserver.mobilesrv.com:5060>;tag=2c0343a6  
To: softphone1 <sip:softphone1@192.168.2.102:5060;user=phone>;tag=ec6f0a00  
Call-ID: 103b0c00cccccccccccccccccccc@192.168.2.102  
CSeq: 2 BYE  
Content-Length: 0

FIGURE 15

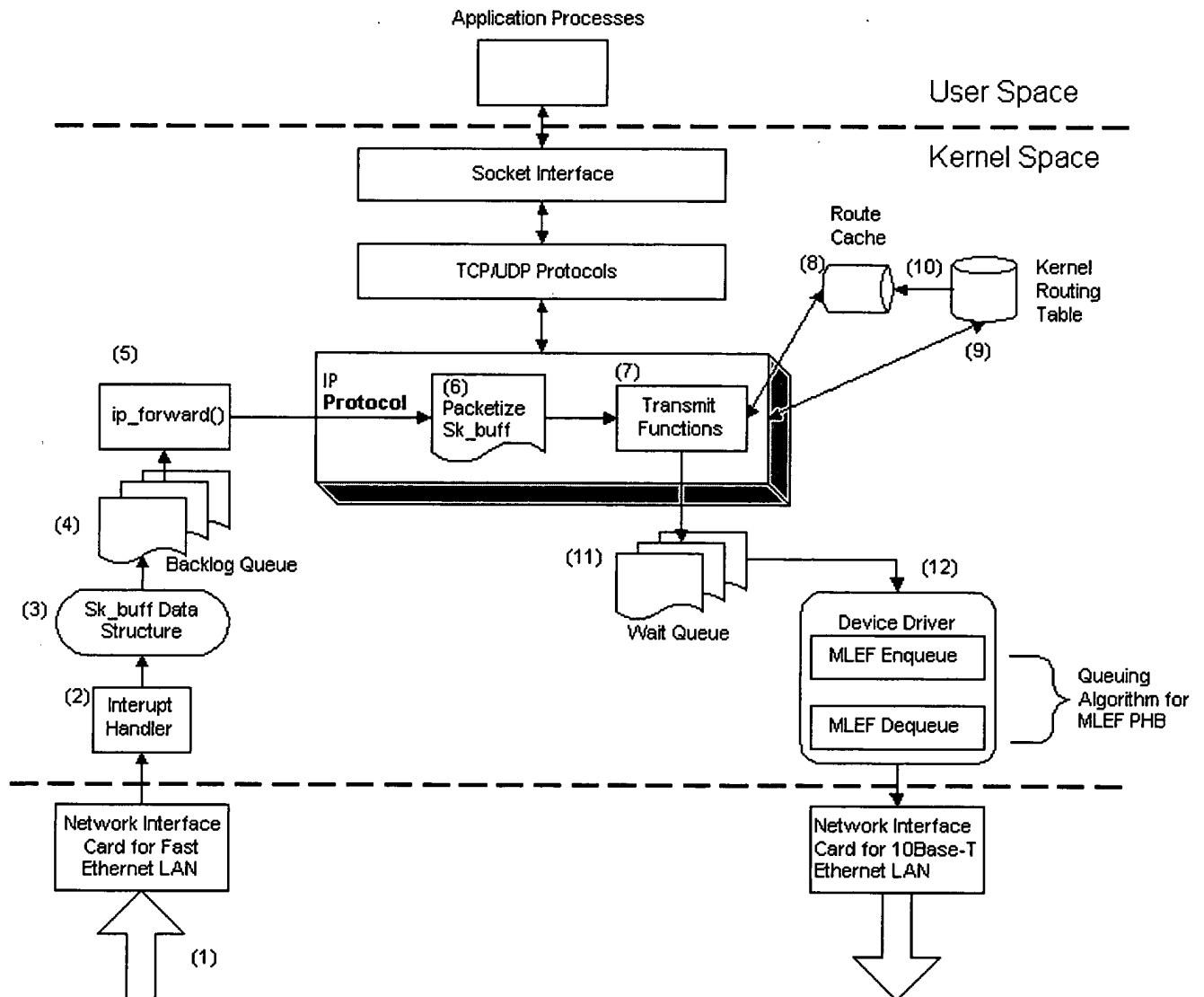




FIGURE 16

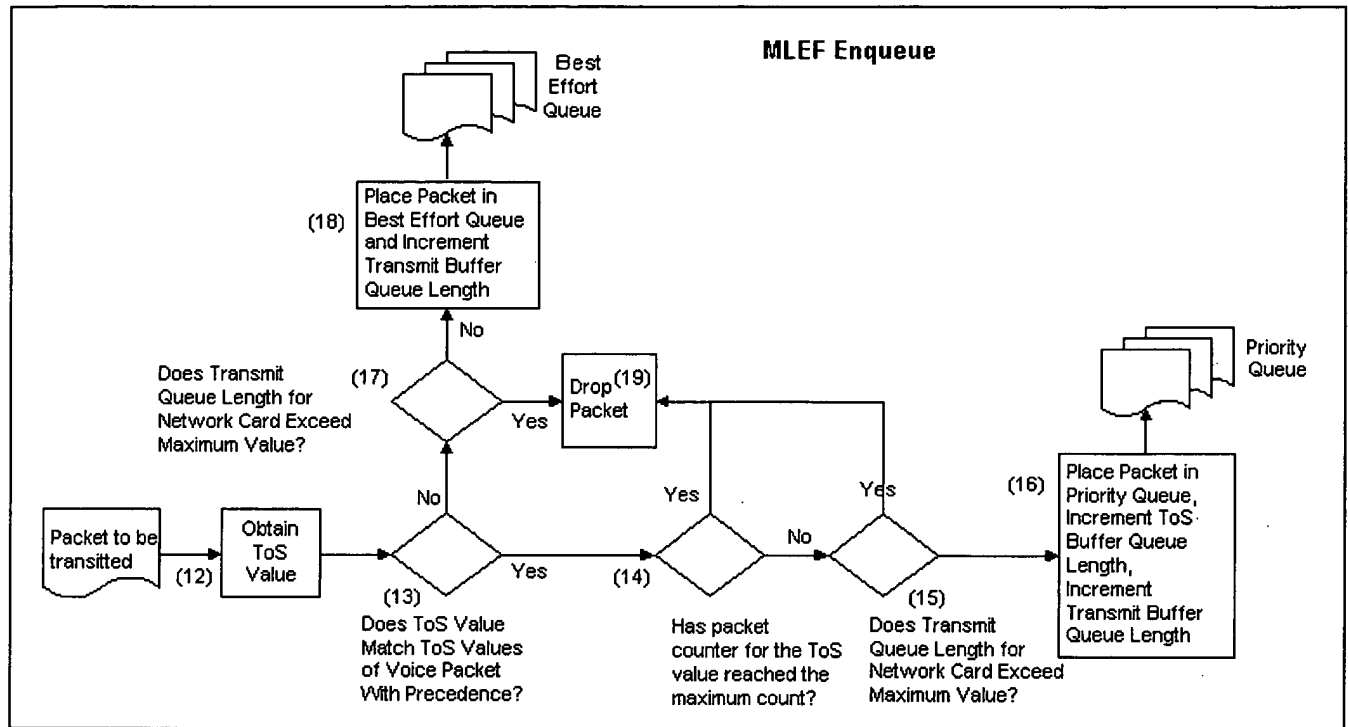
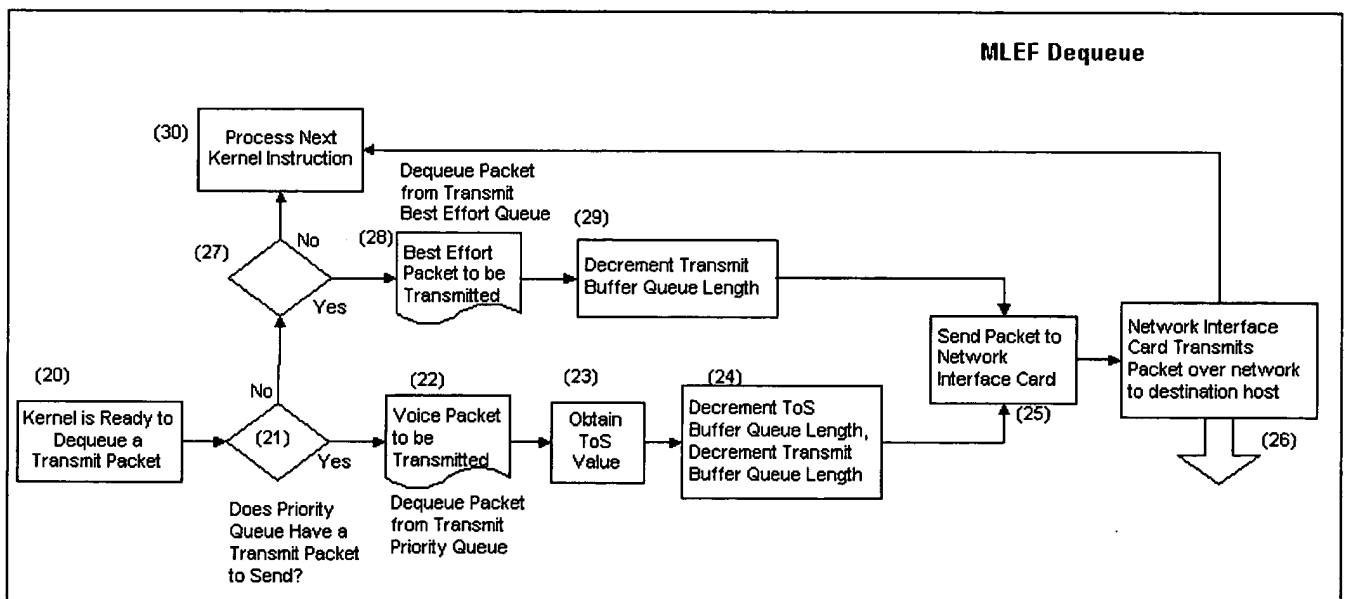
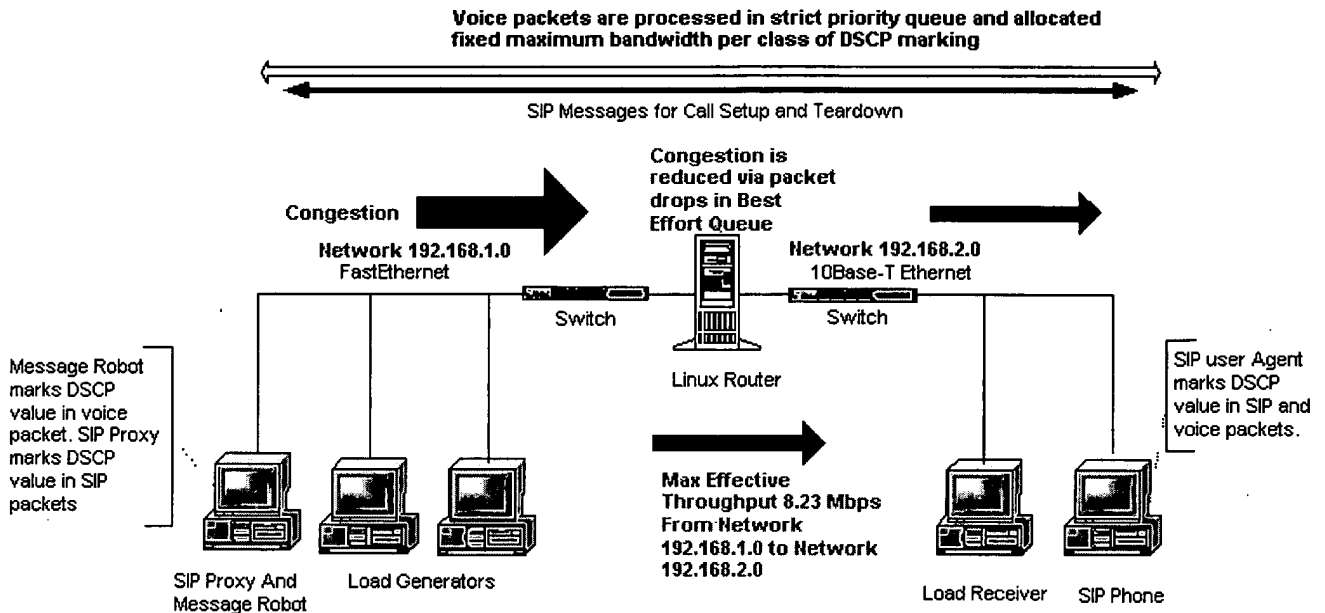


FIGURE 17



**FIGURE 19**



**FIGURE 20**

**Congestion In Priority Queue**

Metric	Results
Number of Priority Packets Sent From Message Robot to MLEF Router	3075
Number of Priority packets Forwarded By MLEF Router to Caller SIP Phone	3075
Number of Priority Packets Dropped By MLEF Router	0
Number of Routine Packets Sent From Load Generators (congestion) to MLEF Router	388216
Number of Routine Packets Forwarded By MLEF Router to Load Receiver	274392
Number of Routine Packets Dropped by MLEF Router	113824
Percentage Drop of Routine Packets	29.32%